

# Rhodora

JOURNAL OF THE  
NEW ENGLAND BOTANICAL CLUB.

Conducted and published for the Club, by

BENJAMIN LINCOLN ROBINSON, Editor-in-chief.

FRANK SHIPLEY COLLINS

MERRITT LYNDON FERNALD } Associate Editors.

HOLLIS WEBSTER

WILLIAM PENN RICH

EDWARD LOTHROP RAND } Publication Committee.

Vol. 17.

August, 1915.

No. 200.

## CONTENTS

Plant Societies at Roque Bluffs, Maine.	<i>C. H. Knowlton</i>	.	145
The Varieties of <i>Cardamine oligosperma</i> .	<i>G. S. Torrey</i>	.	156
A new <i>Carex</i> from Newfoundland.	<i>M. L. Fernald</i>	.	158
Range Extensions of two Grasses.	<i>J. F. Macbride</i>	.	159

Boston, Mass.

1052 Exchange Building.



Providence, R. I.

Preston and Rounds Co.

**RHODORA.**—A monthly journal of botany, devoted primarily to the flora of New England. Price, \$1.50 per year (domestic and foreign); single copies 15 cents. Prices of Volumes 1 and 2 (1899 and 1900) on application. All remittances by check or draft, except on Boston or New York, must include ten cents additional for cost of collection. Notes and short scientific papers, relating directly or indirectly to the plants of the northeastern states, will be gladly received and published to the extent that the limited space of the journal permits. Forms will be closed five weeks in advance of publication. Authors (of more than one page of print) will receive 25 copies of the issue in which their contributions appear. Extracted reprints, if ordered in advance, will be furnished at cost.

Address manuscripts and proofs to

B. L. ROBINSON, 3 Clement Circle, Cambridge, Mass.

Subscriptions, advertisements, and business communications to

W. P. RICH, 300 Massachusetts Avenue, Boston, Mass.

Single copies may be had from

E. L. RAND, Corresponding Sec'y N. E. Botanical Club,

1052 Exchange Building, Boston, Mass.

Entered at Boston, Mass., Post office as Second Class Mail Matter

---

**KEY TO NEW ENGLAND TREES**, Wild and Commonly Cultivated, based primarily upon leaf characters, by J. FRANKLIN COLLINS and HOWARD W. PRESTON. Price 40c. net. PRESTON & ROUNDS Co., Providence, R. I.

---

**CARD-INDEX OF NEW GENERA, SPECIES AND VARIETIES OF AMERICAN PLANTS, 1885 TO DATE.**

For American taxonomists and all students of American plants the most important supplement to the Index Kewensis, this catalogue in several ways exceeds the latter work in detail, since it lists not merely the flowering plants, but pteridophytes and cellular cryptogams, and includes not merely genera and species, but likewise subspecies, varieties and forms. A work of reference invaluable for larger herbaria, leading libraries, academies of sciences, and other centers of botanical activity. Issued quarterly, at \$15.00 per 1000 cards.

GRAY HERBARIUM of Harvard University,

Cambridge, Mass., U. S. A.

---

**CHECK LIST OF GRAY'S MANUAL, 7th EDITION**, compiled by M. A. DAY. Leatherette. Pocket size. Invaluable for collector's memoranda and herbarium records. Published and sold by the GRAY HERBARIUM, Cambridge, Mass. Price postpaid 20 cts. each. Ten copies \$1.50.

---

**SECOND-HAND BOOKS.** Botanical and Entomological. For sale at bargain. List on application with two cent stamp. ELIZABETH F. CURTISS, 4353 Kimbark Avenue, Chicago.

---

*Advertisements of Nurserymen and Dealers in Botanical and other Scientific Publications are inserted in these pages at the following rates per space of 4 in. by 3-4 in. 1 year \$4.00. 6 months \$2.50.*

# Rhodora

## JOURNAL OF

### THE NEW ENGLAND BOTANICAL CLUB

---

Vol. 17.

August, 1915.

No. 200.

---

#### PLANTS AND PLANT SOCIETIES AT ROQUE BLUFFS, MAINE.

CLARENCE H. KNOWLTON.

ABOUT 40 miles east of Mt. Desert, and the same distance southwest of Eastport lies the town of Roque Bluffs, Washington county, Maine. Machias Bay lies just east, and Cutler, across the bay, is sixteen miles to the eastward. The body of water just south is called Englishman's Bay, and receives the waters of Englishman's River, a tidal estuary with tributary brooks, named for the first settler. The waters offshore are very cold, from the Greenland current, and fogs are frequent and dense in summer. This gives the coast a boreal climate, although it lies just south of North Latitude 45°.

The underlying rock is a silicious slate, cut by numerous dikes of diabase, many of which have been eroded by the sea, making deep sea-caves among the cliffs. West of the slate there is a large area of a fine-grained reddish granite, which forms the "red rocks" as the cliffs are locally called. This mass, too, has numerous diabase dikes. Except for these dikes, the rock is silicious and there is little lime to affect the soil and flora. Over the bedrock lies a thick layer of till containing many boulders, mostly of granite, coarse and fine. Over this in many level places lie beds of marine clay.

Between two of the rocky points the waves and the 16-foot tide have thrown up a half-mile of barrier beach, so wide that the inner half of it is under cultivation, and the pond behind it is of water entirely fresh. Besides the Englishman's River there is a smaller unnamed estuary, and the salt marshes border these. The rest of the shore is rocky and in many places precipitous.



For several years I have spent a week or more of my summer vacation in this interesting place. To insure a complete survey of the flora there should be, of course, spring and fall visits as well, but the season there is so short that the plants often overlap. Thus I have seen *Ledum* in bloom on July 4, wild roses on Sept. 3, and *Cornus canadensis* in flower and in fruit in the last week of July. The following lists are therefore reasonably complete.

For convenience in presentation, and to show the natural plant societies of the region, I have selected the eight natural habitats — sea beach, salt-marsh, rocky headlands, peat-bogs, barrier beach pond, swamps, Canadian forest and cleared upland. The swamps and cleared upland are less primitive than the other six groups, and new plants seem to be working into these areas from the warmer region back of the coast.

For completeness the fields should be added, but their flora is largely of outside origin. Four introduced weeds, however, deserve special mention. *Matricaria suaveolens* is the commonest of dooryard and roadside weeds, completely covering the ground in places, and giving forth its pineapple-like odor when crushed. *Rumex Patientia* is the early broad-leaved dock and abounds in many parts of the county. The prevailing *Leontodon* is a large plant 4–5 dm. in height and full of good-sized heads all through July. This plant is pubescent and the involucre is densely covered with hairs. This is quite different from the smooth slender plant which is in bud at the same time, which is the type, while this larger plant is *L. autumnalis*, var. *pratensis*. Another unusual plant, *Arrhenatherum elatius*, has been introduced in grass seed in one place only, but has flourished there for several years.

#### SEA BEACH, SAND OR GRAVEL.

*Agropyron repens*  
*Ammophila arundinacea*  
*Elymus arenarius*  
*Hierochloe odorata*  
*Spartina Michauxiana*  
*Polygonum aviculare*, var. *vegetum*  
*Rumex pallidus*  
*Atriplex patula*, var. *hastata*  
*Suaeda maritima*

*Arenaria peploides* L.,  
 var. *robusta* Fernald  
*Cakile edentula*  
*Rosa virginiana*  
*Lathyrus maritimus*  
*Oenothera muricata*  
*Coelopleurum actaeifolium*  
*Convolvulus sepium*, var. *pubescens*  
*Mertensia maritima*

*Galium Aparine*

Of the above plants it is interesting to note the comparative abundance of *Elymus arenarius* on gravelly beaches. This circumboreal plant is now known along the coast to Casco Bay, the Isles of Shoals and Provincetown. *Rosa virginiana* deserves mention from its great abundance, its variability and the remarkable size and beauty of its flowers and glossy green leaves. *Oenothera muricata* is a very handsome species here. The buds are massed at the top of the stem, appearing cymose, and often ten or a dozen will open at once, forming a ring of flowers. *Mertensia maritima* is a peculiar prostrate plant, with glaucous blue-green leaves, red buds, and blue flowers. It is occasional, but never abundant, on gravelly beaches. *Galium Aparine* occurs in only two places, in loose shingle above high tide, and it has evidently been brought in ballast from further south.

## SALT MARSH.

<i>Zostera marina</i>	<i>Juncus bufonius</i> , var. <i>halophilus</i>
<i>Triglochin maritima</i>	" <i>Gerardi</i>
<i>Agropyron repens</i>	<i>Atriplex patula</i> , var. <i>hastata</i>
<i>Agropyron caninum</i> (L.) Beauv.,	<i>Suaeda maritima</i>
var. <i>tenerum</i> (Vasey) Pease & Moore	<i>Salicornia europaea</i>
<i>Agrostis alba</i>	<i>Polygonum Fowleri</i>
<i>Festuca rubra</i>	<i>Stellaria humifusa</i>
<i>Hierochloa odorata</i>	<i>Spergularia canadensis</i>
<i>Hordeum jubatum</i>	<i>Ranunculus Cymbalaria</i>
<i>Puccinellia angustata</i>	<i>Potentilla pacifica</i>
<i>Spartina glabra</i> , var. <i>alterniflora</i>	<i>Limonium carolinianum</i>
" <i>patens</i>	<i>Glaux maritima</i> , var. <i>obtusifolia</i>
<i>Carex maritima</i>	<i>Plantago decipiens</i>
<i>Scirpus americanus</i>	<i>Aster novi-belgii</i> , var. <i>litoreus</i>
<i>Juncus balticus</i> , var. <i>littoralis</i>	<i>Solidago sempervirens</i>
" <i>bufonius</i>	

In the salt-marshes *Carex maritima* covers large areas so densely that other species are few. The past season, however, after diligent search I found good specimens of the northern *Stellaria humifusa*, prostrate in the tidal mud between the stalks of the *Carex* in one of these areas. *Juncus balticus*, var. *littoralis* is the only salt-marsh species which seems able to compete successfully with other species in other habitats. It is frequent in swampy places some distance from the sea, and at one place I have found it in the shade of spruce trees at the edge of a peat-bog.

## ROCKY HEADLANDS.

<i>Picea rubra</i>	<i>Ligusticum scoticum</i>
<i>Juniperus horizontalis</i>	<i>Vaccinium Vitis-Idaea</i> , var. <i>minus</i>
<i>Alnus mollis</i>	<i>Convolvulus sepium</i> ,
<i>Deschampsia flexuosa</i>	var. <i>pubescens</i>
<i>Festuca rubra</i>	<i>Euphrasia americana</i>
<i>Iris setosa</i> , var. <i>canadensis</i>	" <i>Randii</i>
<i>Arenaria lateriflora</i>	<i>Rhinanthus Crista-galli</i> L.,
<i>Sagina procumbens</i>	var. <i>fallax</i>
<i>Potentilla tridentata</i>	<i>Plantago decipiens</i>
<i>Rosa virginiana</i>	<i>Campanula rotundifolia</i>
<i>Vicia angustifolia</i> , var. <i>segetalis</i>	<i>Senecio sylvaticus</i>
<i>Empetrum nigrum</i>	<i>Solidago Randii</i>

Roque Bluffs is near the southern limit of *Iris setosa*, var. *canadensis* at Little Duck Island. This is frequent on the headlands within reach of the sea-spray, but it does not grow in the salt-marshes. *Empetrum nigrum* is a sprawling undershrub on many of the sea-cliffs, and is different in habit and size from the same plant growing in the sphagnum of peat-bogs. *Euphrasia Randii* I have found in only one place, close to a large diabase dike, but at Machiasport it grows over quartzite, so there is apparently no lithological reason for its scarcity. *Senecio sylvaticus* is a slender annual, occasional in crevices, but never abundant.

PEAT-BOGS.<sup>1</sup>

<i>Larix laricina</i>	<i>Vaccinium macrocarpon</i>
<i>Picea mariana</i>	" <i>Oxycoccus</i>
<i>Betula alba</i> , var. <i>cordifolia</i>	<i>Scheuchzeria palustris</i>
<i>Nemopanthus mucronata</i>	<i>Carex canescens</i> , var. <i>disjuncta</i>
<i>Chamaedaphne calyculata</i>	" <i>leptalea</i>
<i>Andromeda glaucophylla</i>	" <i>limosa</i>
<i>Gaylussacia baccata</i>	" <i>oligosperma</i>
" <i>dumosa</i> (Andr.) T. & G.,	" <i>pauciflora</i>
var. <i>Bigeloviana</i> Fernald	" <i>pauperacula</i> , var. <i>irrigua</i>
<i>Kalmia angustifolia</i>	" <i>sterilis</i>
" <i>polifolia</i>	" <i>trisperma</i>
<i>Ledum groenlandicum</i>	" <i>trisperma</i> , var. <i>Billingsii</i>
<i>Rhododendron canadense</i>	<i>Rhynchospora alba</i>

<sup>1</sup> In this and the following plant societies I have placed trees and shrubs before the herbaceous plants, as a slight aid to visualizing the groups.



<i>Eriophorum callitrix</i>	<i>Comandra livida</i>
" <i>tenellum</i>	<i>Drosera longifolia</i>
" <i>angustifolium</i>	" <i>rotundifolia</i>
" <i>virginicum</i>	<i>Rubus Chamaemorus</i>
<i>Smilacina trifolia</i>	<i>Empetrum nigrum</i>
<i>Arethusa bulbosa</i>	<i>Menyanthes trifoliata</i>
<i>Calopogon pulchellus</i>	<i>Melampyrum lineare</i>
<i>Pogonia ophioglossoides</i>	<i>Aster nemoralis</i> , var. <i>Blakei</i>
<i>Microstylis unifolia</i>	<i>Solidago uniligulata</i>

The peat-bogs are one of the most striking features of the landscape. They are level, or a bit higher in the middle, with stunted trees of *Picea mariana* to add dreariness to the view. Around the edges they are very wet, and some of the bogs quake as you walk in the wet sphagnum. In others the central part is firm and even dry.

The Labrador tea, *Ledum groenlandicum*, is abundant, and has beautiful white flowers in June. One bog is full of staminate *Rubus Chamaemorus*, another has both staminate and pistillate plants, mostly the latter. It is a curious sight to see this plant well fruited, for the berries are a very rich golden yellow, and lie on the beds of sphagnum like so many gold coins. *Gaylussacia dumosa*, var. *Bigeloviana* I have found in only one bog so far, with the moss up nearly to the tuft of leaves at the tip. It is in full bloom in late July, a most attractive cream-white bell-flower. *Scheuchzeria* grows in the peat-bog by the barrier-beach pond, as the other bogs do not seem wet enough for it. *Carex limosa* grows with it, and also flourishes under swamp conditions across the pond. *Carex trisperma*, var. *Billingsii* flourishes in the same place, while the other sedges listed are of more general distribution. *Comandra livida* grows in only one bog, and does not flower or fruit. An examination of several extensive root-systems indicates that this species is not parasitic here. It was new to eastern Maine when I found it in 1907, but it has since been found by Prof. M. L. Fernald at West Quoddy Head. Another tenuous little bog plant is *Melampyrum lineare*, which has linear leaves and is much more delicate than the woodland form of the same species.

The peat-bog flora contains a large number of boreal plants, because these cold wet masses of sphagnum are so much like the bogs northward under the Arctic Circle. Among these boreal plants are *Scheuchzeria*, *Carex limosa*, *C. pauciflora*, *Eriophorum angustifolium*, *Comandra livida* and *Rubus Chamaemorus*. Along with them are many other bog plants whose range is from Newfoundland to Georgia or Florida.

Such are *Carex sterilis*, *Arethusa*, *Pogonia* and *Drosera longifolia*. On the whole, however, the peat-bogs are much more distinctly boreal in character than any of the other plant societies at this place. Many of the species also flourish on the granitic mountain-tops of northern New England.

#### BARRIER-BEACH POND.

<i>Typha latifolia</i>	<i>Eleocharis palustris</i>
<i>Sparganium fluctuans</i>	“ <i>palustris</i> , var. <i>vigens</i>
<i>Potamogeton alpinus</i>	<i>Scirpus validus</i>
“ <i>epihydrus</i>	<i>Nymphaea advena</i> , var. <i>variegata</i>
“ <i>natans</i>	<i>Potentilla palustris</i> (L.) Scop.,
<i>Carex filiformis</i>	var. <i>villosa</i> (Pers.) Lehm.
“ <i>rostrata</i> , var. <i>utriculata</i>	<i>Sium cicutaefolium</i>
<i>Dulichium arundinaceum</i>	<i>Menyanthes trifoliata</i>

The most vigorous of these fresh-water plants is *Menyanthes*, which occupies large areas of the shallow water, and works inland to some extent in peat-bog and swamp. The *Potentilla* is large and handsome, with big stalks, and long root-stocks.

#### SWAMPS AND WET FIELDS.

<i>Salix lucida</i>	<i>Glyceria canadensis</i>
<i>Myrica Gale</i>	“ <i>grandis</i>
<i>Alnus incana</i>	“ <i>laxa</i>
<i>Pyrus melanocarpa</i>	“ <i>nervata</i>
<i>Rosa virginiana</i>	“ <i>pallida</i>
“ <i>nitida</i>	“ <i>Torreyana</i>
<i>Rubus hispidus</i>	<i>Carex conoidea</i>
<i>Spiraea latifolia</i>	“ <i>Crawfordii</i>
<i>Ilex verticillata</i>	“ <i>Crawfordii</i> , var. <i>vigens</i>
<i>Lonicera caerulea</i> , var. <i>villosa</i>	“ <i>crinita</i> , var. <i>gynandra</i>
<i>Aspidium cristatum</i>	“ <i>debilis</i> , var. <i>Rudgei</i>
“ <i>Thelypteris</i>	“ <i>filiformis</i>
<i>Asplenium Filix-femina</i>	“ <i>hormathodes</i>
<i>Osmunda cinnamomea</i>	“ <i>limosa</i>
“ <i>Claytoniana</i>	“ <i>Oederi</i> , var. <i>pumila</i>
<i>Equisetum arvense</i>	“ <i>pallescens</i>
<i>Agrostis alba</i>	“ <i>rostrata</i> , var. <i>utriculata</i>
<i>Bromus ciliatus</i>	“ <i>stellulata</i>
<i>Calamagrostis canadensis</i>	“ <i>stellulata</i> , var. <i>angustata</i>
<i>Glyceria borealis</i>	“ <i>stellulata</i> , var. <i>cephalantha</i>



<i>Carex scoparia</i>	<i>Thalictrum polygamum</i>
“ <i>scoparia</i> , var. <i>condensa</i>	var. <i>hebecarpum</i>
“ <i>scoparia</i> , var. <i>moniliformis</i>	<i>Impatiens biflora</i>
<i>Cladium mariscoides</i>	<i>Hypericum canadense</i>
<i>Dulichium arundinaceum</i>	“ <i>ellipticum</i>
<i>Eleocharis acicularis</i>	“ <i>virginicum</i>
“ <i>palustris</i>	<i>Viola cucullata</i>
“ <i>tenuis</i>	“ <i>incognita</i>
<i>Eriophorum angustifolium</i>	“ <i>lanceolata</i>
<i>Rhynchospora alba</i>	“ <i>pallens</i>
<i>Scirpus atrocinctus</i>	“ <i>primulifolia</i>
“ <i>georgianus</i>	<i>Epilobium adenocaulon</i>
“ <i>rubrotinctus</i>	“ <i>densum</i>
“ <i>rubrotinctus</i> , var. <i>confertus</i>	<i>Conioselinum chinense</i>
<i>Juncus balticus</i> , var. <i>littoralis</i>	<i>Heracleum lanatum</i>
“ <i>brevicaudatus</i>	<i>Hydrocotyle americana</i>
“ <i>bufonius</i>	<i>Lysimachia terrestris</i>
“ <i>effusus</i> , var. <i>Pylaei</i>	<i>Convolvulus sepium</i>
“ <i>filiformis</i>	<i>Cuscuta Gronovii</i>
“ <i>tenuis</i>	<i>Lycopus uniflorus</i>
<i>Iris versicolor</i>	<i>Scutellaria galericulata</i>
<i>Habenaria clavellata</i>	<i>Chelone glabra</i>
<i>Polygonum sagittatum</i>	<i>Galium Claytoni</i>
<i>Rumex Britanica</i>	“ <i>trifidum</i>
“ <i>Patientia</i>	<i>Aster <del>Radula</del></i>
<i>Arenaria lateriflora</i>	<i>Eupatorium perfoliatum</i>
<i>Stellaria borealis</i>	“ <i>purpureum</i> ,
“ <i>graminea</i>	var. <i>maculatum</i>
<i>Ranunculus pennsylvanicus</i>	<i>Solidago graminifolia</i>
<i>Thalictrum polygamum</i>	

Most of these plants are not uncommon in our range, and this habitat is less boreal than several of the others. There are probably other plants in this group which further search would reveal. Of the sedges *Carex Oederi*, var. *pumila* is very common in wet pastures and by roadsides, both in clay and muck. *Viola incognita* is the common white violet of swamps and woods. *Conioselinum* is rare enough to please the botanist decidedly, when he discovers its bright green dissected leaves and white umbels of flowers. *Heracleum* is at only one station near the coast, but flourishes inland.

## CANADIAN FOREST.

- Abies balsamea*  
*Larix laricina*  
*Picea canadensis*  
     " *rubra*  
*Thuja occidentalis*  
*Populus tremuloides*  
*Betula alba*, var. *cordifolia*  
     " " var. *papyrifera*  
*Taxus canadensis*  
*Salix balsamifera*  
     " *discolor*  
     " *discolor*, var. *eriocephala*  
     " *humilis*  
     " *rostrata*  
*Alnus incana*  
     " *mollis*  
*Ribes oxycanthoides*  
     " *prostratum*  
*Amelanchier laevis* Wiegand  
*Prunus pennsylvanica*  
*Pyrus americana*  
     " *arbutifolia*, var. *atropurpurea*  
     " *sitchensis*  
*Rubus nigricans*  
     " *tardatus*  
*Ilex verticillata*  
*Nemopanthus mucronata*  
*Diervilla Lonicera*  
*Lonicera canadensis*  
*Sambucus racemosa*  
*Viburnum cassinoides*  
     " *Lentago*  
*Aspidium noveboracense*  
     " *spinulosum*,  
         var. *dilatatum*  
         var. *intermedium*  
*Asplenium Filix-femina*  
*Phegopteris polypodioides*  
*Polypodium vulgare*  
*Equisetum sylvaticum*  
*Lycopodium annotinum*  
     " *clavatum*  
     " *lucidulum*
- Lycopodium obscurum*,  
     var. *dendroideum*  
*Carex brunnescens*  
     " *communis*  
     " *crinita*  
     " *crinita*, var. *gynandra*  
     " *novae-angliae*  
     " *trisperma*  
*Luzula saltuensis*  
*Maianthemum canadense*  
*Streptopus roseus*  
*Trillium undulatum*  
*Cypripedium acaule*  
*Habenaria obtusata*  
*Polygonum cilinode*  
*Coptis trifolia*  
*Dalibarda repens*  
*Rubus triflorus*  
*Oxalis Acetosella*  
*Circaea alpina*  
*Viola incognita*  
     " *pallens*  
*Aralia hispida*  
     " *nudicaulis*  
*Cornus canadensis*  
*Chiogenes serpyllifolia*  
*Gaultheria procumbens*  
*Moneses uniflora*  
*Monotropa uniflora*  
*Pyrola americana*  
     " *elliptica*  
*Trientalis americana*  
*Melampyrum lineare*  
*Veronica officinalis*  
*Mitchella repens*  
*Linnaea borealis*, var. *americana*  
*Aster acuminatus*  
     " *lateriflorus*, var. *hirsuticaulis*  
     " *puniceus*  
     " *radula*  
*Solidago macrophylla*  
     " *rugosa*  
*Prenanthes trifoliolata*

These woods are dark and mossy with frequent glades. The evergreens predominate, for the poplars are only casual. As for the birches, instead of having the dazzling white bark which often characterizes the paper birches, these trees have a dull reddish bark, and are not conspicuous in the forest. Such rich woods trees as the maples and yellow birch are rare near the shore, even in the undergrowth.

*Salix balsamifera* is an occasional shrub, with bright red young leaves at the tips of the branches. It does not give out its resinous perfume until it has wilted. *Amelanchier laevis* is the only species of the genus which I have so far been able to find. It is abundant and fruits heavily. *Pyrus sitchensis* is occasional close to the sea, but seems to be much less frequent than *P. americana*. In *Rubus* there is a good deal of a trailing species which seems to be *R. nigricans*, while there is another more erect species which always comes out *R. tardatus*, by the key in the seventh edition of Gray's Manual.

The most conspicuous fern is *Aspidium spinulosum*, var. *dilatatum*. It fills moist glades in the woods with great masses of delicate fronds four or five feet long, and often over a foot in width. *Solidago macrophylla*, so frequent in mountain woods inland, here flourishes near sea-level.

In general the flora of these Canadian woods is full and typical, except that the calciphiles are lacking.

#### CLEARED UPLAND (PASTURES, OLD FIELDS AND ROADSIDES).

<i>Juniperus communis</i> , var. <i>depressa</i>	<i>Dicksonia punctilobula</i>
<i>Myrica asplenifolia</i>	<i>Pteris aquilina</i>
<i>Alnus incana</i>	<i>Lycopodium clavatum</i>
<i>Betula populifolia</i>	<i>Agrostis alba</i> , var. <i>vulgaris</i>
<i>Crataegus</i> sp.	“ <i>hyemalis</i>
<i>Rosa virginiana</i>	<i>Danthonia spicata</i>
<i>Rubus canadensis</i>	<i>Panicum boreale</i>
“ <i>idaeus</i> , var. <i>aculeatissimus</i>	“ <i>implicatum</i>
<i>Spiraea latifolia</i>	<i>Poa pratensis</i>
“ <i>tomentosa</i>	“ <i>triflora</i>
<i>Vaccinium canadense</i>	<i>Carex adusta</i>
“ <i>pennsylvanicum</i>	“ <i>pallescens</i>
“ <i>pennsylvanicum</i> , var. <i>nigrum</i>	<i>Juncus Greenei</i>
<i>Diervilla lonicera</i>	<i>Sisyrinchium angustifolium</i>
<i>Aspidium spinulosum</i>	<i>Spiranthes Romanzoffiana</i>
	<i>Polygonum cilinode</i>



<i>Corydalis sempervirens</i>	<i>Cornus canadensis</i>
<i>Potentilla canadensis</i> , var. <i>simplex</i>	<i>Prunella vulgaris</i> L.,
" <i>monspeliensis</i>	var. <i>lanceolata</i> (Barton) Fernald
" <i>tridentata</i>	<i>Euphrasia americana</i>
<i>Lechea intermedia</i>	<i>Houstonia caerulea</i>
<i>Oxalis corniculata</i>	<i>Achillaea Millefolium</i>
<i>Viola incognita</i>	<i>Anaphalis margaritacea</i>
" <i>labradorica</i>	<i>Antennaria canadensis</i>
" <i>primulifolia</i>	<i>Aster lateriflorus</i> , var. <i>hirsuticaulis</i>
" <i>septentrionalis</i>	" <i>paniculatus</i>
<i>Epilobium angustifolium</i>	<i>Hieracium floribundum</i>
<i>Oenothera pumila</i>	" <i>aurantiacum</i>
<i>Aralia hispida</i>	<i>Solidago rugosa</i>

Several of these plants seem to be introductions from outside. Such are *Juniperus communis*, var. *depressa*, *Myrica asplenifolia*, *Betula populifolia* and perhaps the lone *Crataegus* tree.

Last summer I was much pleased to find in dry soil where brush had been burned, a very vigorous sedge which I soon found to be *Carex adusta*, a well-named species. This has been known in New England only from Mt. Desert, and is a northern plant, so it is interesting to secure this Washington County station for it. *Juncus Greenei* is here at its northeastern limit so far as known, its previous limit being Mt. Desert. *Lechea intermedia* is another dry land plant which is rather frequent. *Spiranthes Romanzoffiana* is an early bloomer, as I have found it in late July. *Viola labradorica* seems to be the least of all the violets. The plants are tiny, the leaves small, and the branches very slender, though short. I have found it in only one place.

There are several other very interesting plants which I have found in adjoining towns, and may at some time discover at Roque Bluffs. Thus at Libby Island, Machiasport, I have found *Sagina nodosa*, var. *glandulosa*, *Sedum roseum*, *Lathyrus palustris*, var. *pilosus*, *Epilobium adenocaulon*, var. *perplexans*, *Primula farinosa*, var. *macropoda*, and *Prenanthes nana*. At Point of Maine, Machiasport, are *Sedum roseum* and *Lathyrus palustris*, var. *pilosus*. At Roque Island, which lies a mile off shore in Englishman's Bay, but is a part of Jonesport, I have found *Sparganium angustifolium* and *Montia lamprosperma*, also a hardwood forest of beeches, ash, and hornbeam. At Machias, the next town inland, I have found *Scirpus pedicellatus*, *Streptopus amplexifolius*, *Listera cordata* and *Senecio Robbinsii*, all of which are to be expected in Roque Bluffs.

In addition to Rand and Redfield's excellent Flora of Mt. Desert there have been many RHODORA articles in regard to the flora of the Maine coast. The following list of these articles may be useful for reference.

CHAMBERLAIN, E. B. Meeting of the Josselyn Botanical Society, X. 172.

COLLINS, F. S. An Algologist's Vacation in Eastern Maine, IV. 174; The Marine Flora of Great Duck Island, II. 209.

COOK, M. P. Plants of the Island of Monhegan, III. 187.

CUSHMAN, J. A. *Primula farinosa*, var. *macropoda* on the Maine Coast, IX. 217; Some Interesting Maine Plants, XI. 12.

FERNALD, M. L. Notes from the Phaenogamic Herbarium of the N. E. Botanical Club,—II, XIII. 177.

FERNALD M. L., and WIEGAND, K. M. Botanizing in Eastern Maine, XII. 101, 133.

GRAVES, A. H. Woody Plants of Brooklin, Maine, XII. 173.

HILL, A. F. Notes on the Flora of the Penobscot Bay Region, Maine, XVI. 189.

KENNEDY, G. G. The Maine Coast at Cutler, IV. 23.

KNOWLTON, C. H. Plants collected at Roque Bluffs, Maine, in 1907, IX. 218.

MOULTON, D. H. Annual Meeting of the Josselyn Society, IV. 188.

NORTON, A. H. Plants from the Islands and Coast of Maine, XV. 137.

RAND, E. L. *Pinus Banksiana* on Mt. Desert Island, I. 135; *Subularia* on Mt. Desert, Island I. 155; Plants from the Duck Islands, II. 207; Additions to the Plants of Mt. Desert Island, X. 145.

SHAW, E. L. A New Station for *Iris Hookeri* in Maine, X. 145.

HINGHAM, MASSACHUSETTS.

THE VARIETIES OF *CARDAMINE OLIGOSPERMA*.

G. S. TORREY.

IN a package of plants recently sent to the Gray Herbarium by Mr. W. N. Suksdorf of Bingen, Washington, were included several forms of *Cardamine* allied to *C. oligosperma* Nutt., which he had been unable to place to his satisfaction with the aid of the literature at his command. His keen observations and painstaking notes leave little, however, for the herbarium worker to do. Quotations from Mr. Suksdorf's notes will make the situation clear.

"1816, 7487, 7453 seem to be the common form west of the Cascade Mts., and up the Columbia some distance in the mountains; I have not found it east of the mountains. I distributed this form as *C. oligosperma?*, having before distributed the next one as true *C. oligosperma*. The stem is strict, not often branched, has 4 or more leaves and a very short raceme; young pods hairy; seed mostly rather long.

"7452, 7457 are certainly distinct from *C. oligosperma*, and I think they represent an undescribed species. It is not so strictly erect, less pubescent or nearly glabrous; stems often scape-like or leafless, or with a few branches, mostly large ones if from the base; raceme very much longer; pods mostly narrow, not pubescent, and the pedicels longer; seeds nearly orbicular.

"7451. There can scarcely be any doubt that this *Cardamine* is an undescribed species. I have found it only at one small place, much less than a square rod in size; but I have not looked for it, and so may find it at other places later. It certainly cannot be a form of any one of the above species. Its leaves have fewer leaflets, those of the stem having only 3 or 5; it is glabrous throughout or very nearly so; branches, if any, mostly leafless; pods rather short on short pedicels; but the most important fact seems to be that the flowers come from the axils of conspicuous bracts, especially the lower ones. These bracts are not found everywhere, but I think I have not seen a raceme without any bracts."

It appears, then, that we have three plants all closely related to *C. oligosperma*: a form with a bracted inflorescence; and two bractless forms, one with glabrous, the other with hairy pods. To this series may be added the plant described by Rydberg as *Cardamine unijuga*,



the leaves of which have only 3 leaflets,—doubtless merely a leaf variant.

Turning to O. E. Schulz's recent *Monographie der Gattung Cardamine*,<sup>1</sup> we find that all these forms have been recognized; but unfortunately the fact that Schulz was unfamiliar with the type of Nuttall's *Cardamine oligosperma*, and that his conception of the relations of the various subspecific categories was not altogether in accord with those since set forth in the International Rules, necessitate the following changes.

CARDAMINE OLIGOSPERMA Nutt. in T. & G. Fl. N. Am. i. 85 (1838–40). *C. hirsuta*, subsp. *oligocarpa*, proles *lasiocarpa* O. E. Schulz. Engl. Bot. Jahrb. xxxii. 470 (1903). Nuttall's type, from "Oregon woods," preserved in the Gray Herbarium, bears immature fruit, and has the stems, petioles, leaflets, and pods beset with short stoutish spreading hairs; and the inflorescence bractless. This, the typical form of the species, is confined to Washington and Oregon.—WASHINGTON: wild in garden, Bingen, Klickitat Co., *Suksdorf*, no. 7453; wet places in forest at Prindle, Skamania Co., *Suksdorf*, no. 7487; bottom lands near mouth of Lake River, Clarke Co., *Suksdorf*, no. 2301. OREGON: Oregon woods, *Nuttall*; wet places in dense forest at Linnton near Portland, *Suksdorf*, no. 1816; Sauvie's Island, 1882, *Howell*.

var. **lucens**, var. nov., siliculis glabris, pilis caulis saltem super foliis carentibus. Pods glabrous, hairs of the stem absent, at least above the leaves.—*C. oligosperma* Am. auth. in part. *C. hirsuta* subsp. *oligosperma* O. E. Schulz, l. c., 468.—This smooth variety is much more abundant than the species, extending south to California. The following representative specimens may be cited.—WASHINGTON: damp places, common at Bingen, Klickitat Co., *Suksdorf*, no. 7452 (TYPE in Hb. Gray.); shady rocky stream-banks, Waitsburg, *Horner*, no. R79B64. OREGON: Chenowith Creek, Wasco Co., Oregon, *Sheldon*, no. 10,200; bogs near Portland, 1884, *L. F. Henderson*. CALIFORNIA: Mt. Diablo, 1878, *Lemmon*; foothills near Stanford University, Santa Clara Co., *Baker*, no. 517; back of Alum Rock Park, Santa Clara Co., *Heller*, no. 8484; common in moist shady ground, vicinity of Eureka, Humboldt Co., *Tracy*, no. 1009.

var. **bracteata** (O. E. Schulz), n. comb. *C. hirsuta*, subsp. *oligosperma*, var. *bracteata* O. E. Schulz, l. c., p. 470. This plant, which resembles var. *lucens* in its lack of pubescence, but differs from that and from the species in having narrow simple or trifid bracts at the base of the inflorescence or throughout, is known only from two collections of Mr. *Suksdorf* in Klickitat Co., Washington; viz., low wet places,

<sup>1</sup> *Monographie der Gattung Cardamine*, von O. E. Schulz., Engl., Bot. Jahrb. xxxii. 280–623 (1903).

Columbia River, 1885, no. 503; springy place over a cliff, Bingen, 9 & 15, April, 6 May, 1912, no. 7451.

var. **unijuga** (Rydb.), n. comb. *Cardamine unijuga* Rydb. Bull. Torr. Bot. Club, xxiv. 246 (1897). *C. hirsuta*, subsp. *oligosperma*, proles *unijuga* O. E. Schulz, l. c., 469.—MONTANA: Spanish Basin, Gallatin Co., July 18, 1896, *Flodman*, no. 494 (TYPE collection). WASHINGTON: wet ground, W. Klickitat Co., May 5, 1881, *Suksdorf*, no. 723. Rocky Mts., lat. 39°–41°, 1862, *Hall & Harbour*, no. 33 in part. California: damp grassy places in the cañon of Big Chico creek, Butte Co., March, 1914, *Heller*, no. 11,196. Plants of var. *lucens* collected at Paradise Creek, Mt. Rainier, Washington, Aug. 23, 1895, by *O. D. Allen* approach var. *unijuga*.

GRAY HERBARIUM.

## A NEW CAREX FROM NEWFOUNDLAND.

M. L. FERNALD.

CAREX (FRIGIDAE) **misandroides**, n. sp., laxe caespitosa basi castanea; foliis lineari-involutis apice acicularibus minute serrulatisque; culmis 1–10 cm. altis gracilibus glabris; bracteis umbellae vaginantibus, basi stramineis vel brunneis, supra in laminam brevem subulato-linearem scabram productis; spicis femineis 1–4 plerumque arcuato-pedunculatis basilariis vel terminalibus plerumque umbellatis, ellipsoideis vel ovoideis 0.5–1.5 cm. longis interdum apice masculis; pedunculis valde inaequalibus 0.2–7 cm. longis; spicis masculis 1–2 plerumque 1–1.5 cm. longis, sessilibus vel pedunculatis, pedunculis usque 3.5 cm. longis; squamis femineis atropurpureis lucidis ovatis subacutis, masculis obovatis apice rotundatis plus minusve albido-hyalinisque; perigyniis squama longioribus oblongo-lanceolatis 5–6 mm. longis, 1.7 mm. latis compressis subacuminatis vix rostratis laevibus lucidis atropurpureis enervatis vel obscure nervatis, ore albicanti emarginato, margine integris vel obsolete serrulatis; stigma-tibus 2, achaeniis plano-convexis anguste obovatis 1 mm. longis.

Loosely caespitose, the base castaneous: leaves linear-involute, acicular and minutely serrulate at tip: culms 1–10 cm. high, slender, glabrous: bracts of the umbel sheathing, stramineous or brown at base, produced above into a short subulate-linear scabrous lamina: pistillate spikes 1–4, mostly arcuate-peduncled, basal or terminal, mostly umbellate, ellipsoid or ovoid, 0.5–1.5 cm. long, sometimes staminate at apex; peduncles conspicuously unequal, 0.2–7 cm. long: staminate spikes 1 or 2, chiefly 1–1.5 cm. long, sessile or peduncled; the peduncles up to 3.5 cm. long: pistillate scales purple-black, shining,

ovate, subacute; staminate obovate, rounded and more or less white-hyaline at apex: perigynia longer than the scales, oblong-lanceolate, 5–6 mm. long, 1.7 mm. wide, compressed, subacuminate, scarcely beaked, smooth, shining, purplish-black, nerveless or obscurely nerved; the orifice whitish, emarginate; the margin entire or obsoletely serrulate: stigmas 2; achenes plano-convex, narrowly obovate, 1 mm. long.—NEWFOUNDLAND: mossy knolls on the limestone tableland, altitude 200–300 m., Table Mountain, Port à Port Bay, July 16 & 17, 1914, *Fernald & St. John*, no. 10,801 (TYPE in Gray Herb.).

Simulating *C. misandra* R. Br. of the Arctic, a species in which the terminal spike is staminate at base only, the scales and perigynia narrower, the latter prolonged into a slender distinctly serrate beak, the stigmas commonly 3, and the leaves broader and flat. Only one knoll of *C. misandroides* was observed during a hurried trip across the tableland of Table Mountain and the material collected shows scarcely any individuals which are clearly duplicates, so great is the diversity in length of the culms and peduncles. In one individual a tall culm (1 dm. high) bears an umbel with a nearly sessile staminate spike and 4 pistillate spikes on peduncles from 2 mm. to 3.5 cm. long; others have long slender peduncles arising from near the base of the plant, one of them bearing sessile staminate and pistillate spikes, and one extreme individual has the staminate spike essentially sessile at the base of the plant, with the long-peduncled pistillate spikes overtopping it.

On Table Mountain *C. misandroides* was associated with a choice group of arctic-alpine calciphiles, such as *Kobresia caricina* Willd., *Carex pedata* L., *Salix leiolepis* Fernald, *Anemone parviflora* Michx., *Potentilla nivea* L., *Dryas integrifolia* Vahl, *Hedysarum alpinum* L., *Antennaria eucosma* Fernald & Wiegand, *A. spathulata* Fernald and *Arnica chionopappa* Fernald.

GRAY HERBARIUM.

---

RANGE EXTENSIONS OF TWO GRASSES.—Among the numerous specimens that are constantly being sent to the Gray Herbarium for identification or verification, two have come to my notice that are worthy special note because representing an extension of range and a new introduction to the region covered by the last edition of Gray's Manual.



PANICUM STIPITATUM Nash. We have two collections which greatly extend the range "New Jersey to Kentucky and southward," viz.: OHIO: near Standing Rock, Mahoning County, Aug. 19, 1910, *E. W. Vickers*. Communicated to the Gray Herbarium, March, 1915, by A. N. Rood of Phalanx, Ohio. INDIANA: about five miles east of Norris on the Henryville road, Washington County, Aug. 16, 1912, *Chas. C. Deam* (12,090). The label bears the note, "First record for the state; determined by Agnes Chase."

SPOROBOLUS ASPERIFOLIUS (Nees & Meyer) Thurb. MINNESOTA, low sandy roadside, near Windom, Cottonwood County, August 28, 1914, *J. C. Nelson*. This grass is very common throughout the west, ranging east to Nebraska, Kansas and the Dakotas. It is doubtless an introduction in Minnesota and, if once established, it will probably spread rapidly, if one may judge from its vigor in its native habitat.—J. FRANCIS MACBRIDE, Gray Herbarium.

*Vol. 17, no. 199, including pages 129 to 144, was issued 10 July, 1915.*



## IMPORTANT NEW BOTANICAL BOOKS

COULTER'S PLANT LIFE AND PLANT USES . . . . .	\$1.20
By John Gaylord Coulter, Ph. D., Critic Teacher of Biology, University High School, Normal, Illinois.	
Edition with Cowles and Coulter's Spring Flora . . . . .	1.50
COULTER'S BOTANICAL NOTEBOOK AND LABORA- TORY MANUAL . . . . .	.36
By John Gaylord Coulter, Ph. D.	
With loose leaf binder . . . . .	.72
COWLES AND COULTER'S SPRING FLORA . . . . .	.60
By Henry C. Cowles, Ph. D., Associate Professor of Plant Ecology, University of Chicago, and John Gaylord Coulter, Ph. D.	
Edition with Andrews's Practical Botany . . . . .	1.50

DESCRIPTIVE CIRCULARS SENT ON REQUEST

## AMERICAN BOOK COMPANY

New York

Cincinnati

Chicago

Boston

## HOME GROWN LILIES.

Fresh from Beds. Wild Flowers, Hardy plants of all kinds.

Send for catalogue

F. H. HORSFORD, Charlotte, Vt.

**A YOSEMITE FLORA** by Harvey Monroe Hall and Car-  
lotta Case Hall. A descriptive guide,  
with keys. Includes most species of the Sierra Nevada Mountains.  
282 pages, 11 plates, and 170 text-figures. Pocket-size. Attractively  
bound in flexible leather. Postpaid, \$2.00 net.

PAUL ELDER & CO.

239 GRANT AVENUE, SAN FRANCISCO, CAL.

**ICELAND** Horseback Tours in Saga-Land.—*Russell*.  
Of value to Botanists,—to all Scientists.  
"Best book on Iceland in 100 years,"—*Icelandic Review*.  
12 Mo. Cl. Ornamental; Ill. Photos by author; 314 pp. Mailed in  
U. S. on receipt of *Net Price*, . . . \$2.00.

**CAMBRIDGE BOTANICAL SUPPLY COMPANY**

Laboratory, . . . . Waverley, Mass., . . . . Equipment.